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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE MATTER OF:

Qinglong HAO

GROUP: 1755

SERIAL NO.: 09/646,978

EXAMINER: Koslow, Carol M

FILED: September 25, 2000

FOR: LIGHT-EMITTING MATERIAL AND PRODUCING METHOD THEREOF

Assistant Commissioner of Patents
& Trademarks
Washington, DC 20231

Declaration

We, Qinglong Hao, Pengcheng Li, Jingfeng Gao, Qian Xu, and Atsushi Ogura, are the inventors of the present invention stated in the US patent application No. 09/646,978 and not only have thorough knowledge of the present invention and references cited thereto but also are familiar to the art on which the present invention is based.

We, Qinglong Hao, Pengcheng Li, Jingfeng Gao, Qian Xu, and Atsushi Ogura, hereby declare that:

1. The inventors and assignees of the newly cited reference Hao et al (US 5,885,483) are identical to the inventors and assignees of the present US patent application (No. 09/646,978). Stated otherwise the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same entity in accordance with MPEP 706.02(I)(1) and 706.02(I)(2). It should be noted that the name of the inventor, Mr. Atsushi Ogura was omitted initially by error which was corrected by filing a registration of change of bibliographic data with United States Patent and Trademark Office on March 24, 1997;

2. The formula $(\text{Sr}, \text{Eu}, \text{Dy})_{0.95 \pm x}(\text{Al}, \text{B})_2\text{O}_{3.95 \pm x} \bullet (\text{Sr}, \text{Eu}, \text{Dy})_{4-x}(\text{Al}, \text{B})_{14}\text{O}_{25-x}$ is a chemical formula which properly represents a complex bi-phase crystalline material as disclosed and claimed in the present patent application. The formula means that the bi-phase crystalline material complex consists of an A-phase having the formula $(\text{Sr}, \text{Eu}, \text{Dy})_{0.95 \pm x}(\text{Al}, \text{B})_2\text{O}_{3.95 \pm x}$ and a B-phase having the formula $(\text{Sr}, \text{Eu}, \text{Dy})_{4-x}(\text{Al}, \text{B})_{14}\text{O}_{25-x}$. The A-phase and B-phase together have paragenesis crystallization. The A-phase cannot be separated from the entire complex and the B-phase cannot be separated from the entire complex. The use of a dot "•" in the formula separating the two phases of the material is commonly used in crystallography when the compound is a complex bi-phase compound;

3. The ratio of the A-phase to the B-phase in the resultant is 1:1 according to the present invention; i.e., the compound consists of an inseparable mixture of each phase in a one to one ratio. Thus, no coefficient is shown in the above formula. This ratio was determined by X-ray diffraction in combination with a measurement of the light-emitting spectrum of each and both phases;

4. The formulas for the two examples shown in the present application are not identical. It must be noted that although the value of X is identical in each of the examples ($X=0.01$), the number X does not determine the relative individual amounts of Sr, Eu, and Dy. Instead the fixed X value only determines the total amount of all three elements, Sr, Eu, and Dy in combination. Thus, the two examples only show how afterglow is affected when the individual amounts of SrCO_3 , Eu_2O_3 , and Dy_2O_3 are changed even though the total amount of all three elements, Sr, Eu, and Dy in combination remains the same. The difference between the first and second examples resides in the individual amounts of SrCO_3 , and Dy_2O_3 .

5. The 5-6 hour time interval specified in the present application is a mere example of the time to sinter the body. Sintering is a common technique and it is known to those skilled in the art that the amount of time required will be dependent on the

amount and kind of materials being sintered. One of ordinary skill in the art would easily be able to determine the sintering time for each case.

6. As a result of the measurement of samples, it was found that the light emitting material of the present invention showed brightness of about 8500mcd/m² after five seconds from the instant irradiation was stopped as set forth in the specification on page 6, first paragraph. As shown in table 1 the brightness at the 480th minute after stopping irradiation was more than 10 mcd/m² and the number of hours to further decay down to 3 mcd/m² for each of the examples 1 and 2 was above 80 hours as set forth on page 7 of the specification. Accordingly the afterglow time in the specification between the table and examples is consistent and proves that the light emitting material of the present invention has an excellent visible afterglow time.

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signatures Of Inventors

郝庆隆 Date 2002.12.28
Qinglong HAO

李鹏成 Date 2002.12.28
Pengcheng LI

高景峰 Date 2002.12.28
Jingfeng GAO

徐谦 Date 2002.12.28
Quian XU

Date _____

STATEMENT

As inventors of the US patent application No.09/646,978, we hereby declare that:

The inventors and patentees of the newly cited reference Hao et al(USP 5,885,483) are identical to the inventors and patentees of the present US patent application No.09/646,978. There is a little error omitting Mr. Atsushi OGURA as one of the inventors of this US patent application by the USPTO. And Mr. Atsushi OGURA is a staff of the Chemitch Inc., which is the co-patentee of the US patent No.5,885,483 and the co-applicant of the US patent application No.09/646,978. We filed the registration of change of bibliographic data for invention with the USPTO on March 24, 1997. (see attachment 2)

Inventions Signatures: Qinglong HAO
Pengcheng LI
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Date: December 28, 2002